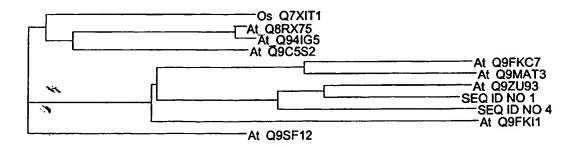


FIGURE 1 A



**FIGURE 1B** 

: ::

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Consensus terms YJE8_YEAST CONSENSUS/80% CONSENSUS/65% CONSENSUS/50%	for the UBX domain KGFLAQ-NYCTLQLKLPNGYTISNTFP-PQTKLHKVRMWLDYNCYDDGTP s.tsplplRhssGpph.ppFspp.lptlhthls.sss stpptt.stsplQlRhssGpphsppFs.uppslpplhphlts.ssss Ppppss.sps+LQlRhPDGpplsccFs.us-sLcplapaVsptpssusss
YJE8_YEAST CONSENSUS/80% CONSENSUS/65% CONSENSUS/50%	YLFHRNIPRVTLTRNDELKSLQEL-DLLPRSTLILEPapl.pshPch.hspthph.pthhspsslllFpL.pshP+c.hspsppl.ch.tlhPsusllltFpLpssaPR+slocsDKoLp-l.sLhPsuoLlLct
Consensus terms AAF74723 CONSENSUS/80% CONSENSUS/65% CONSENSUS/50%	for the PUG domain  EASKLLLTYADNILRNPSDEKYRSIRIGNTAFSTRLLPVRGAVECLFEMGFEEG tslt.LLphhcNhhpp.pshpphlh.h.tshhtF.ph pslpsLL+hl+Nhhcc.pEstthpctltpl.sshphhthtFscl.h solccLLRhlRNlh+Hhcettsppl+EplGslP-uhcpaFsssFPcLhh
AAF74723 CONSENSUS/80% CONSENSUS/65% CONSENSUS/50%	ETHLIFPKphh.h.pphathhpcsYplss

## FIGURE 2 A

UBX domain present in SEQ ID NO 2

339 KAARKKYTKSIIRVQFPDGALLQGVFLPSEPTSALYEFVSAALKEPSLEFELLHPVLVKKRVIPHF PAAGERAVTVEEEDLVPAALLKFK 428

PUG domain present in SEQ ID NO 2:

173 GSVEVVIKLLKNIVKEPENAKFRKIRMGNPKIKGAIGDVVGGVELLEFVGFELKEEGGEIWAVMDV PS 240

UBX domain present in Q9ZU93

345 KAARKRYKRSMIRVQFPDGVVLQGVFAPWEPTFALYEFVSSALKEPSLQFELLDPVLVKRRVIPHT PAPGQKPITLEDEELVPSALIRFRP 435

PUG domain present in Q9ZU93

181 SSIDVLLRLFKNIVKEPENAKFRKVRMSNAKIKEAIGDVAGGVELLELVGFELKEENDEIWAVMDV PS 248

## FIGURE 2 B

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Q9ZU93	1	MDDVKDKLKGFMKKVNLSSSSGKFKGQGRVLGSSSSSSAPPVNPIQNRFN	50
SEQ_ID_NO_2	1	MGDMKDKVKGFMKKVT-SSSSGKFKGQGRVLGGSSSSGPSNHV-NNFS	46
Q9ZU93	51	SSQAPNPTPRPKPNPNPLPEKPLSSSDQKISGSTRNPDHD	90
SEQ_ID_NO_2	47	SHPLNTRQDQQPSYTKTSPQKP-SNSDQRIENICEIQFNKSES	88
Q9ZU93	91	PVRAPQDGFDPYGAFITSSNRSQNGYSL-SMFECPICKNPFTSEEEVSVH	139
SEQ_ID_NO_2	89	KDGFDPFGELVTSGKRNPKGYSLTNVFECPVCGSGFVSEEEVSTH	133
Q9ZU93	140	VESCLGDTN-GDESSFEKDNNDNDKSEMEKLVVVYLSGKPSESSIDV	185
SEQ_ID_NO_2	134	IDSCLSSEVSSNLGVESKVEVKSELETCVSAYVSGKPSEGSVEV	177
Q9ZU93	186	LLRLFKNIVKEPENAKFRKVRMSNAKIKEAIGDVAGGVELLELVGFELKE	235
SEQ_ID_NO_2	178	VIKLLKNIVKEPENAKFRKIRMGNPKIKGAIGDVVGGVELLEFVGFELKE	227
Q9ZU93	236	ENDEIWAVMDVPSEEQSILINKVVGYLEKRKTESSGSSAQVMEPVAPK	283
SEQ_ID_NO_2	228	EGGE IWAVMDVPSEEQLVMLKNVVSLLEPKKVEELASLSQVKASEPVEPK	277
Q9ZU93	284	KIDREIRVFFSVSENVASRIEVPDSFYSLSADEIKREADLRRKKIAESQL	333
SEQ_ID_NO_2	278	KIDRQIRVFFSVPESVAAKIELPDSFFNLSREELRREAEMRKKKLEDSKL	327
Q9ZU93	334	LIPRSYKEKQAKAARKRYKRSMIRVQFPDGVVLQGVFAPWEPTFALYEFV	383
SEQ_ID_NO_2	328	LIPKSYREKQAKAARKKYTKSIIRVQFPDGALLQGVFLPSEPTSALYEFV	377
Q9ZU93	384	SSALKEPSLQFELLDPVLVKRRVIPHTPAPGQKPITLEDEELVPSALIRF	433
SEQ_ID_NO_2	378	SAALKEPSLEFELLHPVLVKKRVIPHFPAAGERAVTVEEEDLVPAALLKF	427
29ZU93	434	RPIETDSLVFTGLRNELLEISEPLS 458	
SEQ_ID_NO_2	428	KPIETDSVVFTGLCNELLEISEPLETGSVASS 459	

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SEQ_ID_NO2	1	MGDMKDKVKGFMKKVTSSSSGKFKGQGRVLGGSSSSGPSNHVNNFSS	47
SEQ_ID_NO4_C	1	mmkdkmkefmkkvtssgsgtpssfkgtshvlgsgpspsss	40
SEQ_ID_NO2	48	HPLNTRQDQQPSYTKTSPQKPSNSDQRIENICEIQFNKSESKDGFD	93
SEQ_ID_NO4_C	41	hpaarssnpspnlrpapkrtspptpptlttdlts	74
SEQ_ID_NO2	94	PFGELVTSGKRNPKGYSLTNVFECPVCGSGFVSEEEVSTHIDSCLSS	140
SEQ_ID_NO4_C	75	-ftplvcyssrrpdangtaCavatvacpscgdafpselavsehldgclas	123
SEQ_ID_NO2	141	EVSSNLGVESKVEVKSELETCVSAYVSGKPSEGSVEVVIKLLKNIVKE  : .:  ::     .::	188
SEQ_ID_NO4_C	124	aggararaaaylaadppppaasvevvkrllgnllre	159
SEQ_ID_NO2	189	PENAKFRKIRMGNPKIKGAIGDVVGGVELLEFVGFELKEEGGEIWAVMD-	237
SEQ_ID_NO4_C	160	pgndkfrrvrlgnprikealadrdggvelleavgftvgdeggepfavmde	209
SEQ_ID_NO2	238	VPSEEQLVMLKNVVSLLEPKKVEELASLSQVKASEPVE-PKKI	279
SEQ_ID_NO4_C	210	vpsdprlngirravlllegahpsappvkaeaeakescsnvsdvqegakti	259
SEQ_ID_NO2	280	DRQIRVFFSVPESVAAKIELPDSFFNLSREELRREAEMRKKKLEDSKLLI	329
SEQ_ID_NO4_C	260	drqirvfvsvpgssmaqndvpdsfyklsgeeirneakmrrerleqsrlli	309
SEQ_ID_NO2	330	PKSYREKQAKAARKKYTKSIIRVQFPDGALLQGVFLPSEPTSALYEFVSA	379
SEQ_ID_NO4_C	310	pksykekqalaarqkykqavirvqfpdrmilqgiflpgeatsslyefvts	359
SEQ_ID_NO2	380	ALKEPSLEFELLHPVLVKKRVIPHFPAAGERAVTVEEEDLVPAALLKFKP	429
SEQ_ID_NO4_C	360	alkqsglefelispaipkprvvphfpnpgerartlqeeelvpsallkfip	409
SEQ_ID_NO2	430	IETDSVVFTGLCNELLEISEPLETGSVASS 459	
SEQ_ID_NO4_C	410	ketdsmvftglldellmaseplpaasq 436	

FIGURE 2 D

: • :

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SEQ_ID_NO_4	1	mmkdkmkefmkkvtssgsgtpssfkgtshvlgsgpspssshpaarssn	48
SEQ_ID_NO_7	1	MMKEKMKDLMRKVTSSSSSSSSSSFKGTAHVLGSGPDPSSRPSN	45
SEQ_ID_NO_4	49	<pre>pspnlrpapkrtspptpptlttdltsftplvcyssrrpdangtaCava  : :  : ::  :               </pre>	96
SEQ_ID_NO_7	46	PTPSRPAAPRREAAASARPPSSGFAPYSPLISTSSRRTDPPAGAGAGEDD	95
SEQ_ID_NO_4	97	tvacpscgdafpselavsehldgclasaggararaaaylaadppppaasv	146
SEQ_ID_NO_7	96	AVACPSCAEPFPSELAVSDHLDGCLAAAGGARPRAAAYLAGDPPASAV	143
SEQ_ID_NO_4	147	<pre>evvkrllgnllrepgndkfrrvrlgnprikealadrdggvelleavgftv                                     </pre>	196
SEQ_ID_NO_7	144	EVVKRLLGNLLSDPRNDKYRKVRLGNPRIKEALADREGGVDLLEAVGFRV	193
SEQ_ID_NO_4	197	<pre>gdeggepfavmdevpsdprlngirravlllegahpsappvkaeaeakesc .     .  :     .  .  :      .  .  :  </pre>	246
SEQ_ID_NO_7	194	ADEGGELFALMDEVPGDARLGGIRQAVLLLERARPSTPP-QTQADAKETC	242
SEQ_ID_NO_4	247	<pre>sn-vsdvqegaktidrqirvfvsvpgssmaqndvpdsfyklsgeeirnea .    :.  :                          </pre>	295
SEQ_ID_NO_7	243	PNGVSEEQGIKKPVDRQIRVFFSVAASSVAENDLPDSFYSLSNEEIRNEA	292
SEQ_ID_NO_4	296	kmrrerleqsrllipksykekqalaarqkykqavirvqfpdrmilqgifl	345
SEQ_ID_NO_7	293	KMRRERLEQSRLLIPKSYKEKQALAARQKYKQALIRIQFPDGVILQGVFL	342
SEQ_ID_NO_4	346	pgeatsslyefvtsalkqsglefelispaipkprvvphfpnpgerartlq	395
SEQ_ID_NO_7	343	PAEPISSLYEFVASSLKOPSLEFDLICPAGPRTRVIPPFPKPGEQARTLR	392
SEQ_ID_NO_4	396	<b>eeelvpsallkfi</b> pketdsmvftglldellmaseplpaasq 436::::::::::::::::::::::::::::::::::::	
SEQ ID NO 7	393	DEDLVPSARLTFKPKETDSVVFTGLLDELLETSEPFTSASS 433	

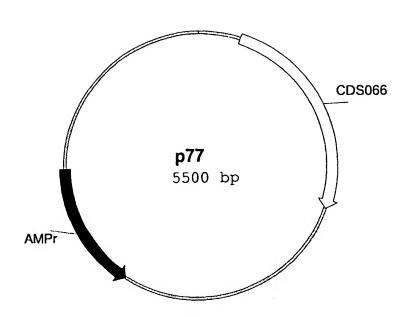


FIGURE 3

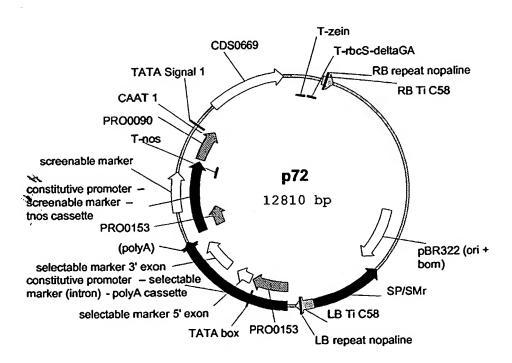


FIGURE 4

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#### SEO ID NO 1: GRUBX coding sequence

atgggtgacatgaaggataaagtcaaagggttcatgaaaaaagtcacatcttcttcttcaggtaagttta aaggccaaggtagggttttgggtggttcatcttcttcaggaccctcaaatcatgtcaataatttttcatc a cat ccccta a ataca agg caa gat caa caac ctt cat ataca a a actt cgcct caa a a accaa gta ataca caa gat caac a caac ataca caa gat caac accaa gta ataca caa gat caac accaa gat accaa accaa gat caac accaa gat $\verb|tctgatcaaagaattgagaatatatgtgaaattcagttcaacaaaagtgaatcaaaggatggttttgatc|$  $\verb|catttqqtgaattagtcacttctqqgaagagaaacccaaaaqqqtattcacttactaatqtqtttqaatq|\\$  $\verb|ccctqtctgtggtagtggttttgtttctgaagaagaggtgtcaactcatattgatagctgtttaagttct|\\$ gaagtgtcttctaatttgggagttgaaagtaaagttgaagttaaaagtgaattggaaacatgtgttagtg $\verb|catatgtttcagggaagccctcagaagggtcagttgaagtggtcattaagttgttaaagaatattgtgaa|\\$ ggaaccagagaatgccaagtttaggaaaataaggatggggaatccaaaaataaaaggtgctataggtgat  $\tt gttgtaggaggagtggagctattggaatttgttggatttgagttgaaagaaggatggggaaatttggg$  $\verb|ctgtgatggatgttccttctgaagaacaacttgttatgcttaagaatgtagtttcactcttggaaccgaa|\\$ gaaggttgaagagttggcgtccttatcccaagttaaggcgagtgaaccagttgagccgaagaagattgat agacagattcgagtgttcttttctgttcccgagagcgtagcagcaaaaattgagctacctgattccttct $\verb|cgtgtacagtttccagatggagcattgcttcaaggtgtctttctaccttcggagccaactagtgctcttt|\\$ at gag tt tg tg ag cg cag cg tt aa ag gaac caa g ct tag ag tt cg aat tg tt acat ccg g tg ct tg tt aa $\verb|cctgcagctctactcaaatttaaacctatcgaaacagattctgttgtttttactggtctttgtaatgagc|$ ttcttgaaattagcgagcccctcgagaccggatcagttgcttcctcgtaa

### SEQ ID NO 2: GRUBX, deduced protein sequence

MGDMKDKVKGFMKKVTSSSSGKFKGQGRVLGGSSSSGPSNHVNNFSSHPLNTRQDQQPSYTKTSPQKPSN SDQRIENICEIQFNKSESKDGFDPFGELVTSGKRNPKGYSLTNVFECPVCGSGFVSEEEVSTHIDSCLSS EVSSNLGVESKVEVKSELETCVSAYVSGKPSEGSVEVVIKLLKNIVKEPENAKFRKIRMGNPKIKGAIGD VVGGVELLEFVGFELKEEGGEIWAVMDVPSEEQLVMLKNVVSLLEPKKVEELASLSQVKASEPVEPKKID RQIRVFFSVPESVAAKIELPDSFFNLSREELRREAEMRKKKLEDSKLLIPKSYREKQAKAARKKYTKSII RVQFPDGALLQGVFLPSEPTSALYEFVSAALKEPSLEFELLHPVLVKKRVIPHFPAAGERAVTVEEEDLV PAALLKFKPIETDSVVFTGLCNELLEISEPLETGSVASS

### SEQ ID NO 3: GRUBX orthologue from sugarcane

atgatgaaggacaagatgaaggagttcatgaagaaggtcacctcctccgggtccgggaccccctcctcct aaaccctagcccaaacctcaggcccgctcctaagcggacctcgccacctaccccgcccactttaaccacc gatttgacctccttcacgcccctcgtctgctactcctcccgccgccccgacgcgaacggcaccgcgnnng ccgcccgcgcctccgtagaggtggtcaaacgcctgctgggcaacctgctccgggagcccggcaacgata agetcaggcgggtgagattgggtaacccgcggatcaaggaggccctggcagacagggatggcggggtgga cctagcgaccctaggctcaacgggatcaggaggccgtcctcctgctcgagggggcacacccctctgcgc ctccagtgaaggcggaggctgaggccaaggagagctgcagcaatgtgtctgacgtgcaggagggtgctaa gactattgatcggcagattcgggtatttgtctctgttcctgggagttctatggcacaaaatgatgtacca $\tt gattcttttacaagcttagtggtgaggagataaggaatgaagcaaagatgaggagggaaaggttagaac$ aatctcgattgctgataccaaagtcttacaaggagaaacaggcattggctgctcgacagaagtataaaca agcagt cattcg agttcagtttccagatag aatgattcttcagggcatattcctaccaggag aggccactagttcactgtatgagttcgtcacatctgctctgaagcaatcaggtttggaattcgaacttatctctccagggagctggtcccatctgcgctcctcaagttcattcccaaggagactgattccatggttttcaccggtttg cttgatgagcttctcatggccagtgagccgcttcctgctgcatcacaatga

FIGURE 5

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SEQ ID NO 4: sugarcane GRUBX orthologue, deduced protein sequence MMKDKMKEFMKKVTSSGSGTPSSFKGTSHVLGSGPSPSSSHPAARSSNPSPNLRPAPKRTSPPTPPTLTT DLTSFTPLVCYSSRRPDANGTAXAVATVACPSCGDAFPSELAVSEHLDGCLASAGGARARAAAYLAADPP PPAASVEVVKRLLGNLLREPGNDKFRRVRLGNPRIKEALADRDGGVELLEAVGFTVGDEGGEPFAVMDEV PSDPRLNGIRRAVLLLEGAHPSAPPVKAEAEAKESCSNVSDVQEGAKTIDRQIRVFVSVPGSSMAQNDVPDSFYKLSGEEIRNEAKMRRERLEQSRLLIPKSYKEKQALAARQKYKQAVIRVQFPDRMILQGIFLPGEAT SSLYEFVTSALKQSGLEFELISPAIPKPRVVPHFPNPGERARTLQEEELVPSALLKFIPKETDSMVFTGLLDELLMASEPLPAASQ

SEQ ID NO 5: expression cassette comprising GRUBX (1011-2390) operably linked to the prolamine promoter (1-654) and the T-Zein + T-Rubisco deltaG terminator (2615-2808 and 2852-3048):

cttctacatcggcttaggtgtagcaacacgactttattattattattattattattattattattaca aaaatataaaatagatcagtccctcaccacaagtagagcaagttggtgagttattgtaaagttctacaaa catatgacatactataattttgtttttattattgaaattatataattcaaagagaataaatccacatagc atcatgtatatatgatagccacaaagttactttgatgatgatatcaaagaacatttttaggtgcacctaa cagaatatccaaataatatgactcacttagatcataatagagcatcaagtaaaactaacactctaaagca accgatgggaaagcatctataaatagacaagcacaatgaaaatcctcatcatccttcaccacaattcaaa tattatagttgaagcatagtagtaatttaaatcaactagggatatcacaagtttgtacaaaaaagcaggc ctccacttccaatttctcattgcttcttcttcccatttccacctccaaagccatccttccagaaaacctt gttccttacatttcttagccccaaaaaagattcccatctcaattccacaaaaaaacacaaggagatctaa agattttggtgagagggtgttattgaaaaaaatgggtgacatgaaggataaagtcaaagggttcatgaaaa accetcaaatcatgtcaataatttttcatcacatceectaaatacaaggcaagatcaacaacettcatat acaaaaacttcgcctcaaaaaccaagtaattctgatcaaagaattgagaatatatgtgaaattcagttca acaaaagtgaatcaaaggatggttttgatccatttggtgaattagtcacttctgggaagagaaacccaaa tcaactcatattgatagctgtttaagttctgaagtgtcttctaatttgggagttgaaagtaaagttgaag ttaaaagtgaattggaaacatgtgttagtgcatatgtttcagggaagccctcagaagggtcagttgaagt ggtcattaagttgttaaagaatattgtgaaggaaccagagaatgccaagtttaggaaaataaggatgggg aatccaaaaataaaaggtgctataggtgatgttgtaggaggagtggagctattggaatttgttggatttg taagaatgtagtttcactcttggaaccgaagaaggttgaagagttggcgtccttatcccaagttaaggcg agigaaccagttgagccgaagaagattgatagacagattcgagtgttcttttctgttcccgagagcgtag cagcaaaaattgagctacctgattccttctttaacctctcacgtgaggaattgagaagagaagcagagat gaggaagaagaattagaagattccaaattattgattcctaaatcttatcgggaaaagcaggcaaaagct gcaagaaagaagtacacaaaatccattatccgtgtacagtttccagatggagcattgcttcaaggtgtct ttctaccttcggagccaactagtgctctttatgagtttgtgagcgcagcgttaaaggaaccaagcttaga gttcgaattgttacatccggtgcttgttaaaaagcgggtgattccccattttccagctgctggggagagg gctgtaacagttgaagaggaggatttggttcctgcagctctactcaaatttaaacctatcgaaacagatt ctgttgtttttactggtctttgtaatgagcttcttgaaattagcgagcccctcgagaccggatcagttgc gcgccgggaatgctgcggccgctctagagtatccctcgaggggcccaagcttacgcgtacccagctttct tgtacaaagtggtgatatcacaagcccgggcggtcttctagggataacagggtaattatatccctctaga 

FIGURE 5 (continued)

SEQ ID NO 6: Oryza sativa GRUBX orthologue, DNA sequence atgatgaaggaaaagatgaaggatctcatgaggaaggtcacctcctcctcctcctcctcgtcgtcct cctccttcaagggcaccgcccacgtcctcggctccggccccgacccctcctcccgcccctccaaccctac  $\verb|ccctagtcgccccgctgcccccggcgagaggccgccctccgcgaggccgccctcctccggcttcgcc|$ acgacgccgtcgcgtgccccagctgcgccgagccgttcccctccgagctggcggtgtcggaccacctcqa tccgccgtggaggtggtgaagaggctgctcgggaacctgctctccgacccccggaacgacaagtacagga ggccgtggggttcagggtcgccgacgagggcggggagctcttcgccctcatggacgaggtgcccggggac gcgaggctcggcggcatcaggcaggccgtgctcctgctcgagagggcccggccatcgacgccgcaga cacaggcagatgccaaagagacttgcccgaatggagttagcgaagagcaggggattaagaagccggttga  ${\tt tcgtcagattcgggtgttcttctctgttgctgcaagttctgttgcagaaaatgatctaccagattctttc}$ tgttgattccaaagtcatataaggagaagcaggcactggctgcccgacagaagtataaacaagctctgat tatgagtttgtcgcatcttctttgaagcagccaagtttggaattcgatcttatctgtccagcgggtccta cccttctgctcggctcaccttcaagcccaaagagactgattcggttgtgttcactggtctgttggacgag cttcttgagaccagtgagccgttcacatctgcatcctcatga

SEQ ID NO 7: Oryza sativa GRUBX orthologue, deduced protein sequence MMKEKMKDLMRKVTSSSSSSSSSSSSKGTAHVLGSGPDPSSRPSNPTPSRPAAPRREAAASARPPSSGFA PYSPLISTSSRRTDPPAGAGAGEDDAVACPSCAEPFPSELAVSDHLDGCLAAAGGARPRAAAYLAGDPPA SAVEVVKRLLGNLLSDPRNDKYRKVRLGNPRIKEALADREGGVDLLEAVGFRVADEGGELFALMDEVPGD ARLGGIRQAVLLLERARPSTPPQTQADAKETCPNGVSEEQGIKKPVDRQIRVFFSVAASSVAENDLPDSF YSLSNEEIRNEAKMRRERLEQSRLLIPKSYKEKQALAARQKYKQALIRIQFPDGVILQGVFLPAEPISSL YEFVASSLKQPSLEFDLICPAGPRTRVIPPFPKPGEQARTLRDEDLVPSARLTFKPKETDSVVFTGLLDE LLETSEPFTSASS

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FIGURE 5 (continued)